

REMARKS/ARGUMENTS

After the foregoing Amendment, Claims 1-26 are currently pending in this application. Claims 1-12 and 22 have been amended to more distinctly claim subject matter which the Applicants regard as the invention. Support for the amended text is found on page 4, lines 18-20 of the Description. Applicants submit that no new matter has been introduced into the application by these amendments.

Double Patenting Rejection

Claims 1-26 are rejected under the judicially created doctrine of double patenting (i.e., obviousness-type) as being unpatentable over claims 1-79 of U.S. Patent No. 6687492. A Terminal Disclaimer is submitted herewith to overcome the obviousness-type double patenting rejection. The withdrawal of the obviousness-type double patenting rejection is respectfully requested.

Claim Rejections - 35 USC §102

Claims 1, 3, 10-12, 14, 21-22, and 24 stand rejected under 102(e) as being anticipated over US2004/0013212 (Benesty et al.).

Benesty et al. is primarily directed to an iterative signal detection technique for MIMO communication systems. Benesty et al. only incidentally discloses the concept of transmitting with an equal power among a plurality of antennas according to the Lucent "BLAST" open-loop spatial multiplexing scheme. BLAST is

an open-loop scheme that automatically lends itself to uniform transmit power across antennas. Benesty et al. is no more relevant than the BLAST papers Applicant submitted in an Information Disclosure Statement. However, achieving uniform power constraint across antenna is a more difficult problem when beamforming along the eigenmodes of the channel between two devices.

By contrast, the claimed subject matter pertains to a vector transmit beamforming technique/system in which a plurality of modes (the vector \mathbf{s} representing the L signals s_1 to s_L) are beamformed with a transmit matrix \mathbf{A} with the eigenvectors of the channel between a first device and second device subject to the power constraint that the power emitted by each of the N plurality of antennas of the first device is less than or equal to a maximum power. Again, Benesty et al. does not disclose the power constraint concept in the context of a transmit beamforming system.

Claims 3 and 10-11 are dependent upon claim 1, claims 14 and 21 are dependent upon claim 12, and claim 24 is dependent upon claim 22, which the Applicants believe are allowable over the cited prior art of record for the same reasons provided above.

Based on the arguments presented above, withdrawal of the 35 USC 102 rejection of claims 1, 3, 10-12, 14, 21-22, and 24 is respectfully requested.

Claim Rejections - 35 USC §103

Claims 2, 4-9, 13, 15-20, 23, 25-26 stand rejected under 103(a) as being unpatentable over Benesty et al. in view of U.S. Patent No. 6377631 (Raleigh).

Claims 2, 4-9 are dependent upon claim 1, claim 13, 15-20 are dependent upon claim 12, and claims 23, 25-26 are dependent upon claim 22 which the Applicants believe are allowable over the cited prior art of record for the same reasons provided above.

Furthermore, the combination of Benesty and Raleigh does not disclose the invention as claimed. Raleigh discloses a space-time signal processing system, and more particularly a system which operates according to a substantially orthogonalizing procedure, that decomposes the time-domain space time channel into parallel space-frequency bins. Raleigh teaches spatial multiplexing along eigenmodes and discloses techniques for adaptive bit and power loading across eigenstreams, but Raleigh does not specifically address the issue of "uniform power constraint" across all antennas. The power constraint technique that is the subject matter of this application simplifies power amplifier design at the transmitter. Thus, Raleigh is not directed, nor does it teach, using the eigenvectors of the channel to beamform multiple modes (L signals) between a first device and a second device.

Based on the arguments presented above, withdrawal of the 35 USC 103 rejection of claims 2, 4-9, 13, 15-20, 23, 25-26 is respectfully requested.

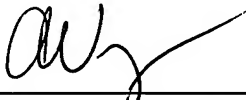
Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application, including claims 1-26, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

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Enclosures